California Sustainable Freight Action Plan: Pilot Project Ideas

Project Title: ***Utilizing Bluetooth Technology for Tracking Truck Travel Times and Bottlenecks***

Name & Contact Information

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PROJECT LOCATION

Interstate-80 (I-80), From Yolo County line to the Nevada State line. Post mile Yolo 0.00 to R11.718, Sacramento M0.00 to 18.00, Placer 0.00 to 69.769, Nevada R58.712 to 31.783, and Sierra 0.00 to 1.593.

PROJECT EXECUTIVE SUMMARY

Improve freight mobility by utilizing Bluetooth technology to provide real-time travel times. As part of the Intelligent Transportation Systems (ITS) infrastructure, Bluetooth receivers will be installed in existing controller cabinets. Real-time information received from the receivers will directly be sent to the District Traffic Management Center (TMC) media and Changeable Message Signs (CMS) notifications, and to the truck driver's Global Positioning System (GPS) navigation device.

PROJECT DESCRIPTION

Traffic congestion and bottleneck creates delay and can be an added cost to the transportation of goods. Idling heavy-duty trucks (HDT) in traffic congestion can also contribute to increased GHG emissions and poor air quality conditions within those bottleneck locations. Utilizing advanced technology such as Bluetooth to provide vehicle real-time travel times and identify bottlenecks can help improve freight mobility within the I-80 corridor. Majority of the inductive loop detectors for bottleneck and congestion monitoring systems are located or installed in the urban areas of the I-80 corridor. Bluetooth receivers will be installed in 30-35 locations of existing Intelligent Transportation Systems (ITS) infrastructure along I-80 that have no inductive loop detectors installed. Installation of the Bluetooth receivers in existing controller cabinets will eliminate the gap in acquiring data information in the rural areas and will provide a cohesive and better information for the truck drivers in planning their trip. Caltrans will perform the system integration in the controller cabinets.

The Bluetooth receiver will detect Bluetooth signals from vehicles, hands-free devices, mobile phones, and other navigation systems[1]. Real-time anonymous data information received from the Bluetooth receivers will be directly sent to the District Traffic Management Center (TMC) for media and Changeable Message Signs (CMS) notifications, and to the truck drivers Global Positioning System (GPS) navigation device or software (i.e. Garmin, Tomtom, Waze). The truck drivers will receive current traffic conditions and truck related notifications. Truck drivers will also be able to plan ahead on using alternative routes, avoid, and eliminate idling on the current bottleneck locations. Improved mobility and truck travel efficiency will also help decrease greenhouse gas (GHG) emissions.

[1] Accurate Bluetooth vehicle detection. (2015, October/November). *ITS International*, p. 70.

ESTIMATED COST FOR IMPLEMENTATION AND EXISTING FUNDING COMMITMENTS

Planning level total cost estimate is $300,000. This includes approximately $150,000 for materials and $150,000 for labor. There is currently no funding commitments attached to this project. However, there is a potential to acquire State Highway Operation and Protection Program (SHOPP) funding for Intelligent Transportation Systems/Operational improvements.

TIMELINE

If funding becomes available, the entire project can potentially be completed within 2 years after it is fully programmed within the 2016 Fiscal Year (FY).

MEANS FOR MEASURING PROGRESS TOWARD MEETING GOALS OVER TIME

Improved Level of Service (LOS) and Vehicle Miles Traveled (VMT). Positive survey feedback from truck drivers on travel times, information received, and notifications.

Improved air quality.

DESCRIPTION OF THE POTENTIAL ROLES EACH OF THE INTERAGENCY PARTNERS COULD PROVIDE TO SUPPORT THE PROJECT'S IMPLEMENTATION

The California Department of Transportation (Caltrans) will be the lead agency in implementing this project idea and will coordinate partnership and data sharing with the California Truck Association (CTA), I-80 Coalition, SACOG, other local agencies, and navigation and traveller information system providers (e.g. Waze).

The California State Transportation Agency (CalSTA), California Environmental Protection Agency (CalEPA), and the California Natural Resources Agency can help provide support in funding the implementation of this project.

Caltrans, the Governor's Office of Business and Economic Development (GO-Biz), the California Energy Commission and the California Air Resources Board (ARB) can provide support in coordinating an annual survey with the CTA regarding travel times, and recommended improvements within the I-80 Corridor.